

Plants and Animals

Lesson 1b: Living Things in Our Terrarium

Grade: Kindergarten	Length of lesson: 30–32 minutes (with optional math connection)	Placement of lesson in unit: 1b of 6 lessons on plants and animals
Unit central question: Do plants and animals need the same things to live and grow? Explain your thinking.		Lesson focus question: How can we group the living things in our terrarium?
Main learning goal: Plants and animals are both living things in our terrarium.		
Science content storyline: In our terrarium, there are living and nonliving things. The living things can be grouped as plants or animals. Next, we'll investigate what animals and plants need to live and grow. We'll also figure out whether plants and animals need the same things in order to live and grow.		
Ideal student response to the focus question: The living things in our terrarium are the praying mantis, the worms, the ladybugs, and two kinds of plants. These living things can be put in two groups: plants and animals. The praying mantis, the worms, and the ladybugs are animals.		

Preparation

Materials Needed

- Science notebooks
- Chart paper and markers
- Class terrarium (from lesson 1a)
- Magnifying lenses (1 per student) (from lesson 1a)
- Circle map (from lesson 1a)
- Tree map (from lesson 1a)
- Tape (to secure laminated photos on the tree map)

Student Handouts and Teacher Masters

- 1.1 Terrarium Instructions and Mantis Care (Teacher Master) (from lesson 1a)
- 1.2 Terrarium (Teacher Master) (from lesson 1a) (as needed)
- 1.3 Terrarium Picture Cards (1 set per pair; 1 set for teacher) (from lesson 1a) (**Note:** Students will only need the cards of living things.)

Ahead of Time

- Review the content background document and Common Student Ideas about Plants and Animals.
- On chart paper, create a new tree map titled “Living Things in Our Terrarium,” with two branches labeled “Plants” and “Animals.”
- You’ll also need a new set of terrarium picture cards (handout 1.3) to tape on this map. Use only the cards of living things.
- Review the care instructions for the terrarium and mantis from handout 1.1. Make sure to mist the inside of the terrarium with water every two or three days for the praying mantis to drink.
- **ELL support:** Meet with ELL students in advance and introduce them to the lesson content, structure, materials, and activities so they know what’s expected and can participate more fully. Identify vocabulary terms in the lesson plan to review with students in advance, including *living*, *nonliving*, *plants*, *animals*, *live/stay alive*, *grow*, and *investigate*. Keep in mind that some of the distinctions between living and nonliving things from the previous lesson are also used to distinguish plants from animals in this lesson (e.g., plants don’t move). This may confuse students, so be prepared to provide additional support to help them understand these distinctions.

Lesson 1b General Outline

Time	Phase of Lesson	How the Science Content Storyline Develops
7 min	Link to previous lesson: The teacher revisits the unit central question, <i>Do plants and animals need the same things to live and grow? Explain your thinking.</i> Then the teacher engages students in reviewing the characteristics of living things and the tree map of objects they observed in the terrarium from the previous lesson.	<ul style="list-style-type: none"> Scientists often sort objects in an environment into categories or groups of living and nonliving things.
1 min	Lesson focus question: The teacher introduces the focus question, <i>How can we group the living things in our terrarium?</i>	
5 min	Setup for activity: The teacher sets up a sorting activity by having students pick two living things in the terrarium that they think are alike and explain their reasoning.	<ul style="list-style-type: none"> Living things can be grouped as either plants or animals.
6–8 min	Activity: Students work in pairs to sort the living things in the terrarium into groups of either plants or animals.	
5 min	Follow-up to activity: The teacher works with students to construct a tree map that categorizes plants and animals in the terrarium into separate groups.	
5 min	Synthesize/summarize today’s lesson: The teacher revisits the focus question, and students share their ideas with an elbow partner. Then students write down the name of one plant and one animal they saw in their terrarium.	<ul style="list-style-type: none"> Living things can be grouped as plants or animals. In our terrarium, we have two kinds of plants and three kinds of animals (the praying mantis, the ladybugs, and the worms).
1 min	Link to next lesson: The teacher links science ideas to the next lesson.	

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7 min	<p>Link to Previous Lesson</p> <p>Synopsis: The teacher revisits the unit central question, <i>Do plants and animals need the same things to live and grow? Explain your thinking.</i> Then the teacher engages students in reviewing the characteristics of living things and the tree map of objects they observed in the terrarium from the previous lesson.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> • Scientists often sort objects in an environment into categories or groups of living and nonliving things. 	<p>Link science ideas to other science ideas.</p> <p>Highlight key science ideas and focus question throughout.</p> <p>Ask questions to probe student ideas and</p>	<p>Show slides 1 and 2.</p> <p>Do you remember the big question we’re trying to answer in this unit on plants and animals? Let’s read it together.</p> <p>NOTE TO TEACHER: <i>Point to the words on the board and have students read the unit central question aloud with you.</i></p> <p>We’ll keep thinking about this big question today as we explore what living things need to live and grow. The ideas we learn about will help us answer this question by the end of our unit.</p> <p>Before we talk more about living things and what they need to live and grow, let’s review what we learned about in our last lesson.</p> <p>Who can remind us what a terrarium is?</p>	<p>A terrarium has different kinds of plants and animals in it that live on land.</p> <p>No. It has nonliving</p>	<p>Does a terrarium only have plants and animals in it?</p>

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		<p>predictions.</p> <p>Ask questions to challenge student thinking.</p>	<p>Now let's look at the tree map we made yesterday and think about the things we found in our terrarium.</p> <p>NOTE TO TEACHER: <i>Point to the tree map and the pictures of the living and nonliving things that students observed in the terrarium.</i></p> <p>What was one living thing we saw in our terrarium, and how did we know it was alive?</p>	<p>things in it too, like rocks and dirt and water and stuff.</p> <p>We saw a praying mantis.</p> <p>It was moving around.</p> <p>It was eating the ladybugs!</p> <p>Yes, they were trying to move away from the praying mantis!</p>	<p>How did we know the praying mantis was alive?</p> <p>So were the ladybugs alive too?</p> <p>What else did we see that was living in our</p>

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			<p>What nonliving things did we see in our terrarium?</p>	<p>We saw a worm!</p> <p>It burrowed down under the dirt.</p> <p>We thought the plant was alive, but the stick was dead.</p> <p>The plant can grow, but the stick can't.</p> <p>We saw a rock.</p> <p>Because it doesn't move or grow.</p> <p>Water is a nonliving thing.</p> <p>The dirt isn't alive.</p>	<p>terrarium?</p> <p>How do we know the worm was alive?</p> <p>Was anything else alive?</p> <p>Why did we think the plant was alive but the stick was dead?</p> <p>How do we know the rock isn't alive??</p> <p>Why did we decide that the water is a nonliving thing?</p> <p>How do we know the dirt isn't alive?</p>

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			<p>Today we're going to talk about the living things we found in the terrarium and see if we can figure out which ones belong together in different groups.</p>	<p>Because it can't move or grow or breathe.</p>	
1 min	<p>Lesson Focus Question</p> <p>Synopsis: The teacher introduces the focus question, <i>How can we group the living things in our terrarium?</i></p>	<p>Set the purpose with a <u>focus question</u> or goal statement.</p>	<p>Show slide 3.</p> <p>In our last lesson, we sorted the things in our terrarium into two groups: living things and nonliving things.</p> <p>Today we'll think about the living things in our terrarium.</p> <p>Our focus question is <i>How can we group the living things in our terrarium?</i></p> <p>NOTE TO TEACHER: Write the focus question on the board for students to refer to throughout the lesson and draw a box around it. Point to each word as you read the question aloud with the class.</p>		
5 min	<p>Setup for Activity</p> <p>Synopsis: The teacher sets up a sorting activity by having students pick two living things</p>	<p>Make explicit links between</p>	<p>Show slide 4.</p> <p>Here's a challenge for you. In our terrarium, we have five kinds of living things. There</p>		

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	<p>in the terrarium that they think are alike and explain their reasoning.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Living things can be grouped as either plants or animals. 	<p>science ideas and activities before the activity.</p> <p>Select content representations and models matched to the learning goal and engage students in their use.</p> <p>Ask questions to challenge student thinking.</p> <p>Engage students in constructing explanations and arguments.</p>	<p>are two different kinds of plants and three kinds of animals that include a praying mantis, ladybugs, and worms.</p> <p>NOTE TO TEACHER: <i>Point to the pictures of living things on the tree map from the previous lesson and the corresponding living things in the terrarium.</i></p> <p>Turn and Talk: Pick two living things from the terrarium that you think are most like each other. Then share your choices with an elbow partner and tell your partner why you think these two living things are alike. Be prepared to share with the class.</p> <p>Whole-class share-out: So which two living things did you pick that you think are most alike?</p> <p>NOTE TO TEACHER: <i>During this share-out, challenge students to give reasons for their choices.</i></p>	<p>We picked the two plants because they can't move around.</p> <p>They're both green.</p> <p>They both grow out of the soil.</p>	<p>What are some other ways the two plants are alike?</p>

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		<p>Highlight key science ideas and focus question throughout.</p>	<p>You've noticed a number of ways living things in our terrarium are alike.</p> <p>Scientists have noticed some of the same things you noticed. They've found it's very useful to divide living things into two groups: plants and animals. This is one way scientists group living things.</p> <p>Let's see what happens when we do that.</p>	<p>We said the praying mantis and the ladybug are alike because they move around and have legs.</p>	
6–8 min	<p>Activity</p> <p>Synopsis: Students work in pairs to sort the living things in the terrarium into groups of either plants or animals.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Living things can be grouped as either plants or animals. 	<p>Make explicit links between science ideas and activities during the activity.</p>	<p>NOTE TO TEACHER: <i>Display the new tree map you created on chart paper (Things in Our Terrarium) and point out the two branches labeled "Plants" and "Animals."</i></p> <p>Let's look at this new tree map. It's similar to our other tree map, but this one shows only living things. What two groups of living things are listed on our new map?</p> <p>Show slide 5.</p>	<p>Plants and animals.</p>	

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		<p>Engage students in using and applying new science ideas in a variety of ways and contexts.</p> <p>Ask questions to probe student ideas and predictions.</p>	<p>For our next investigation, we're going to think about how the plants and animals in our terrarium are alike and different. In a moment, I'll have you pair up with an elbow partner, and I'll give you picture cards showing the living things in our terrarium. Then you and your partner will sort the pictures into two groups: plants or animals.</p> <p>First, you'll look carefully at each picture. Then you'll talk about whether the living thing in the picture is a plant or an animal. If you decide it's a plant, you'll put it in the plant group. If you decide it's an animal, you'll put it in the animal group. Be ready to give reasons for your sorting decisions.</p> <p>NOTE TO TEACHER: <i>Have students pair up with an elbow partner. Then give each pair a set of terrarium picture cards from handout 1.3 (Terrarium Picture Cards) that show only the living things in the terrarium. Before beginning the activity, make sure students understand what they're supposed to do. As pairs work together on the activity, circulate around the room and ask students probe questions to clarify the reasons for their sorting decisions. This will be especially important if you see students placing objects in the wrong groups. Don't</i></p>		

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		<p>Ask questions to elicit student ideas and predictions.</p> <p>Ask questions to probe student ideas and predictions.</p> <p>Engage students in constructing explanations and arguments.</p>	<p><i>correct students at this point, since the class will work toward a consensus on the appropriate classifications following the activity.</i></p> <p>Pairs work time.</p> <p>Whole-class discussion: Let’s find out how you grouped the living things in our terrarium. I’d like everyone to hold up the pictures you decided belong in the plants group.</p> <p>NOTE TO TEACHER: <i>Scan the pictures to make sure that everyone is holding up two plant cards.</i></p> <p>So we all agree that these living things are in the plants group.</p> <p>NOTE TO TEACHER: <i>Hold up the terrarium picture cards of the two different plants in the terrarium.</i></p> <p>How are these plants alike?</p>	<p>They’re both green.</p> <p>They don’t have heads or noses or</p>	<p>What else do you notice about the plants?</p>

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			<p>So where should we put these plant pictures on our tree map?</p> <p>Now I'd like everyone to hold up the pictures you decided belong in the animals group.</p> <p>NOTE TO TEACHER: <i>Look at the pictures to make sure that everyone is</i></p>	<p>eyes or ears!</p> <p>They have leaves instead of arms and legs.</p> <p>They grow in the soil.</p> <p>They have roots!</p> <p>They can't move around or walk.</p> <p>They go in the plants group.</p>	<p>What else about them is the same?</p> <p>Yes! Even if we can't see under the soil, we know that both plants have roots.</p> <p>Is there anything else about plants that makes them alike?</p>

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			<p><i>holding up pictures of animals.</i></p> <p>So we all agree that these living things are in the animals group.</p> <p>NOTE TO TEACHER: <i>Hold up the terrarium picture cards of the praying mantis, the worm, and the ladybug.</i></p> <p>How are all of these animals alike?</p>	<p>They all can move.</p> <p>The praying mantis and the ladybugs have legs.</p> <p>We didn't see any legs, but the worms can move under the dirt.</p> <p>It looks like they all have eyes.</p>	<p>What about the earthworms?</p> <p>So maybe we just haven't looked close enough at the earthworms to see how they move.</p> <p>How else are these animals alike?</p>

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			<p>So where should we put all of these living things on our tree map?</p>	<p>It looks like the praying mantis and the ladybugs have mouths.</p> <p>They might have mouths so they can eat.</p> <p>They belong in the animals group.</p>	<p>Do you think the earthworms have mouths?</p>
5 min	<p>Follow-Up to Activity</p> <p>Synopsis: The teacher works with students to construct a tree map that categorizes plants and animals in the terrarium into separate groups.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Living things can be grouped as either plants or animals. 	<p>Make explicit links between science ideas and activities after the activity.</p> <p>Engage students in communicating in scientific ways.</p>	<p>Show slide 6.</p> <p>Now let's list these plants and animals on our new tree map.</p> <p>Who can describe the plants that belong in the plants group?</p> <p>What are the names of the animals that belong in the animals group?</p> <p>NOTE TO TEACHER: <i>Make sure the class reaches a consensus about which</i></p>	<p>One plant is spiky.</p> <p>One plant has leaves.</p> <p>The praying mantis.</p> <p>The earthworms.</p>	<p>Can you point to it?</p>

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			<p><i>living things in the terrarium are plants and which are animals. Remind students that both plants and animals are living things.</i></p> <p><i>After students reach a consensus, tape the corresponding picture of the object (from handout 1.3) on the tree map. By the end of the discussion, the tree map should ideally look like this:</i></p> <table border="1" data-bbox="911 708 1430 984"> <thead> <tr> <th data-bbox="911 708 1152 748"><i>Plants</i></th> <th data-bbox="1152 708 1430 748"><i>Animals</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="911 748 1152 984"> <ul style="list-style-type: none"> • <i>Philodendron (the plant with leaves)</i> • <i>Spider plant (the plant with spikes like grass)</i> </td> <td data-bbox="1152 748 1430 984"> <ul style="list-style-type: none"> • <i>Praying mantis</i> • <i>Ladybugs</i> • <i>Worms</i> </td> </tr> </tbody> </table>	<i>Plants</i>	<i>Animals</i>	<ul style="list-style-type: none"> • <i>Philodendron (the plant with leaves)</i> • <i>Spider plant (the plant with spikes like grass)</i> 	<ul style="list-style-type: none"> • <i>Praying mantis</i> • <i>Ladybugs</i> • <i>Worms</i> 	The ladybugs.	
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			<p>Show slide 7.</p> <p>Optional math connection (5 min).</p> <p>How many kinds of plants did we find in the terrarium?</p> <p>How many kinds of animals did we find in the terrarium?</p>	<p>Two kinds.</p> <p>Three kinds.</p>					

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			Were there more kinds of plants or more kinds of animals in our terrarium? How do you know?	There were more kinds of animals.	
5 min	<p>Synthesize/Summarize Today's Lesson</p> <p>Synopsis: The teacher revisits the focus question, and students share their ideas with an elbow partner. Then students write down the name of one plant and one animal they saw in their terrarium.</p> <p>Main science idea(s):</p> <ul style="list-style-type: none"> Living things can be grouped as plants or animals. In our terrarium, we have two kinds of plants and three kinds of animals (the praying mantis, the ladybugs, and the worms). 	<p>Highlight key science ideas and focus question throughout.</p> <p>Engage students in making connections by synthesizing and summarizing key science ideas.</p>	<p>Show slide 8.</p> <p>Let's revisit today's focus question, <i>How can we group the living things in our terrarium?</i></p> <p>Turn and Talk: Talk about your ideas with an elbow partner and be ready to share your answers with the class. You can look at our new tree map as you work together.</p> <p>Whole-class share-out: So what are the living things in our terrarium?</p> <p>Which of these living things are animals?</p>	<p>The worms.</p> <p>The plants.</p> <p>The ladybugs.</p> <p>The praying mantis.</p> <p>The praying mantis, the worms and the ladybugs are</p>	

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			<p>Which of these living things are plants?</p> <p>Show slide 9.</p> <p>Look at the pictures on our tree map of the living things in our terrarium. The name of each living thing is written below its picture.</p> <p>In your science notebooks, I'd like you to name or describe one <i>plant</i> you saw in our terrarium and one <i>animal</i> you saw. You can look at the pictures up here on our tree map to see how to spell the words.</p> <p>ELL support: You may also want to give ELL students the option of drawing a picture as a mnemonic device.</p> <p>Whole-class share-out (if time allows): Who would like to share the plant and animal you wrote down in your notebooks?</p>	<p>animals.</p> <p>The spiky plant [<i>spider plant</i>] and the plant with leaves [<i>philodendron</i>].</p>	
1 min	<p>Link to Next Lesson</p> <p>Synopsis: The teacher links</p>	Link science	<p>Show slide 10.</p> <p>Next time, we'll think about what the plants</p>		

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	science ideas to the next lesson.	ideas to other science ideas.	and animals in our terrarium and in the world around us need to live and grow. Then we'll investigate where they can get the things they need.		